

2010

Public Health Response to the H1N1 Influenza Pandemic

In Health District 4

This document summarizes Central District Health Department's efforts to minimize the impact of the 2009/2010 H1N1 influenza pandemic.

Prepared by Nikole A. Sakata
Central District Health Department
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Executive Summary

In April 2009, Central District Health Department (CDHD) responded to the threat of an influenza pandemic caused by a new H1N1 influenza virus. Resources for treatment, prevention, and control were provided by the federal government to the health district for management and delivery to partners in the health care community (e.g., hospitals, clinics, and pharmacies) and the public. From April 2009 to March 2010, CDHD utilized the Incident Command System as the framework for operating during this public health emergency. Various aspects of this response are detailed in this report.

Vaccine Distribution

Vaccination is the cornerstone of influenza prevention and control and was the nexus of our response. Vaccine was received in early October and distribution began immediately. Initially, the supply of vaccine fell short of the demand. To cope with this challenge, CDHD chose to narrow the priority groups to ensure that those who were at greatest risk for poor health outcomes or had direct contact with persons at greatest risk for poor health outcomes were offered vaccine ahead of others. Once vaccine availability picked up, CDHD was able to expand the priority groups in accordance with CDC recommendations. As demand decreased and supply increased, CDHD was able to offer vaccine to everyone.

The department employed three primary methods for distributing and administering vaccine to the public. The health care community administered more than 33,000 doses. Over 30,000 doses were administered in schools as part of an initiative to get children and adolescents vaccinated. Nearly 21,000 doses were administered through point of dispensing clinics operated by CDHD. Health care providers administered another 1,800 doses in rural areas where public health services were limited.

Surveillance

Epidemiologists have been monitoring the human impact of the virus at the international, national, state, and local levels. In Health District 4, over 270 cases H1N1 influenza have been confirmed by laboratory testing. The majority of cases in this outbreak occurred in October and early November. Most cases (>30%) occurred in children 5 to 19 years of age. Of the confirmed cases, 124 were hospitalized and five deaths have been attributed to H1N1 influenza infection. Current trends show a decline in the incidence of cases; however, monitoring will continue because past pandemics have been shown to occur in waves of outbreaks over the course of 18 to 24 months.

Finance

Federal funding was provided to cover the costs of planning, implementation, and epidemiology. Health District 4 received a total of \$1,482,204 and to date has spent just over one million.

Timeline on H1N1 (novel) Influenza										
Mar	Apr	May	Jun	Jul-Aug	Sept	Oct	Nov	Dec	Jan -Feb	Mar
A new virus	The U.S. responds	Vaccine stage one	WHO declares pandemic	Clinical trials	FDA approval	Distribu-tion begins	Priority: At risk groups	Program expansion	Sustained operations	Demob-ilization

Goal 1: Prevent the spread of the H1N1 influenza virus

- Objective 1: Promote disease prevention strategies (e.g., wash hands, cover cough, and stay home when sick)
- Objective 2: Identify clusters of cases and make appropriate disease prevention recommendations (e.g., sending students home when sick, and closing schools)
- Objective 3: Conduct surveillance. Monitoring person, place, and time; as well as, severity of illness, infectiousness, and duration of illness

Goal 2: Reduce the risk for morbidity and mortality

- Objective 1: Prioritize vaccine distribution to those at greatest risk for poor health outcomes and to those who have direct contact with those at greatest risk for poor health outcomes (e.g., History of diabetes, kidney disease, suppressed immune systems, pregnant women, health care workers, family members, and day care providers)
- Objective 2: Coordinate with hospitals to ensure the health care system is not overwhelmed and make resources available as needed (e.g., N-95 respirators, antivirals, and BLU-MED shelters)

Goal 3: Limit barriers to vaccine access

- Objective 1: Diversify the methods in which we make vaccine available to the public (e.g., point of dispensing (POD) clinics, schools, medical clinics, and pharmacies)
- Objective 2: Make vaccine available at locations throughout the Health District with consideration to transportation barriers and work schedules
- Objective 3: Make vaccine available at no cost to the public

Goal 4: Communicate with the public

- Objective 1: Distribute information to the public in a timely manner
- Objective 2: Use various means of communication (e.g., call center, Internet, and media)
- Objective 3: Get information to those with limited English proficiency

Goal 5: Communicate with community partners

- Objective 1: Keep County Commissioners and Board of Health members informed
- Objective 2: Communicate and include supporting partners (e.g., health care workers and schools) during entire planning stage

Approach

Central District Health Department (CDHD) used the National Incident Management System (NIMS) and Incident Command System (ICS) as the framework for operating during this public health emergency. This framework has been used by the agency in past emergencies (e.g., Hepatitis A outbreak) and has proven to be an effective model in which to operate. The ICS provided a clear chain-of-command that was beneficial for assigning tasks, communicating information, and was able to be expanded to include outside agencies and organizations in response to the emerging situation. Operating within this framework contributed positively to our organized response.

Accomplishments

Accomplishments were noted throughout the vast functions necessary to respond to this public health emergency. Most notably, our aggressive efforts to protect the public's health were recognized in the outcomes of our response. Twenty point of dispensing (POD) clinics were held throughout the health district since October 8, 2009. Nearly 21,000 people benefited from this effort. Over 30,000 students were vaccinated in 140 primary and secondary schools. Additionally, vaccine was made available to 145 partners that included private health clinics, hospitals, pharmacies, and detention centers throughout the health district. Through these partnerships, more than 91,000 doses of vaccine were administered throughout the Health District since October 2009.

Operations

Vaccine Distribution

Three primary methods for distributing vaccine to the public were employed by CDHD. These three methods included public clinics, vaccine distribution to partners, and school-based strike teams. All of these methods of vaccine distribution have been implemented in each of the four counties within the Health District (Tables 1 & 2). Additionally, special clinics were also available to persons determined to be 'critical infrastructure', which included first responders, city and county officials, and utility companies.

Table 1

Vaccine Distribution by Activity	
POD clinics	20,777
Healthcare*	58,404
Schools	30,114
CDHD Offices (Partners)	7,183
Total	116,478

* Amount distributed, not administered.

Table 2

Vaccine Distribution by County		
	Number Distributed	Percent per Population
Ada County	108,150	28.4%
Boise County	408	5.4%
Elmore County	6,748	23.3%
Valley County	1,172	13.2%

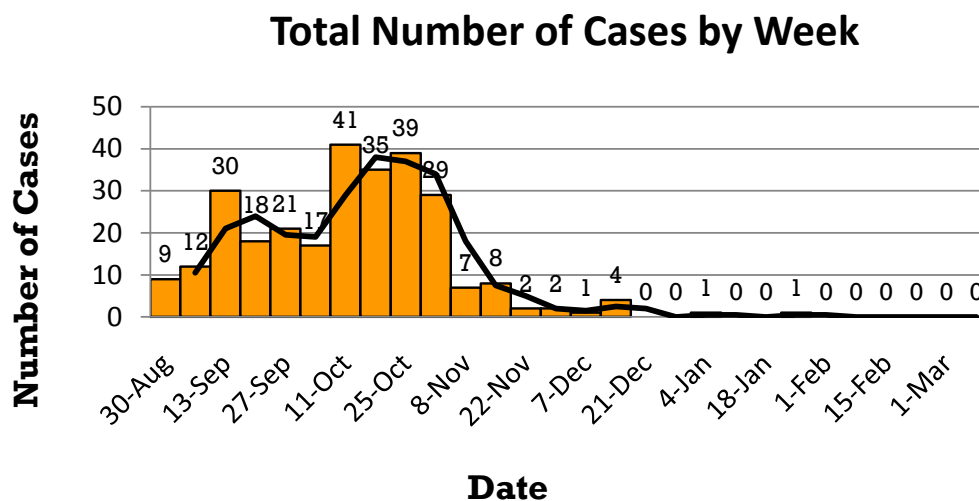
Note: Population based on 2008 mid-year population estimates from the U.S. Census Bureau

Surveillance

Active surveillance has been ongoing since the first cases of the 2009 H1N1 influenza virus were reported. Epidemiologists monitored and will continue to monitor the human impact of the virus at the international, national, state, and local levels. Current trends show a significant decline in the incidence of cases since November 2009. Locally, 277 (56.3% female) cases of H1N1 influenza have been reported in Health District 4 since September 1, 2009 (Figures 1, 2 & 3). Of these, 124 (44.8%) cases have required hospitalization and there have been five confirmed deaths (Figures 4 & 5). Two of the fatalities were reported in Elmore County and three were from Ada County.

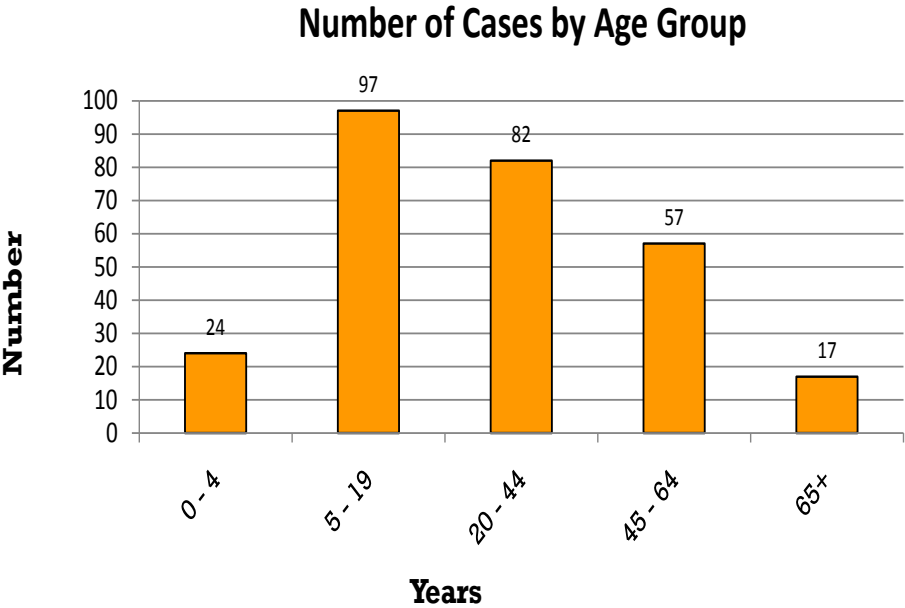
Surveillance efforts will continue in an effort to scrutinize influenza-like illness and monitor triggers that may indicate any possible subsequent outbreaks (waves).

Figure 1



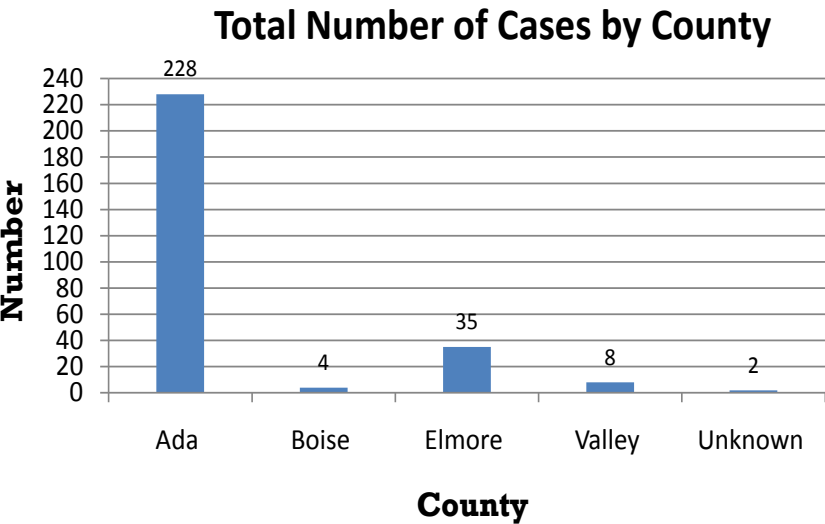
Note: Provisional data as of March 12, 2010

Figure 2



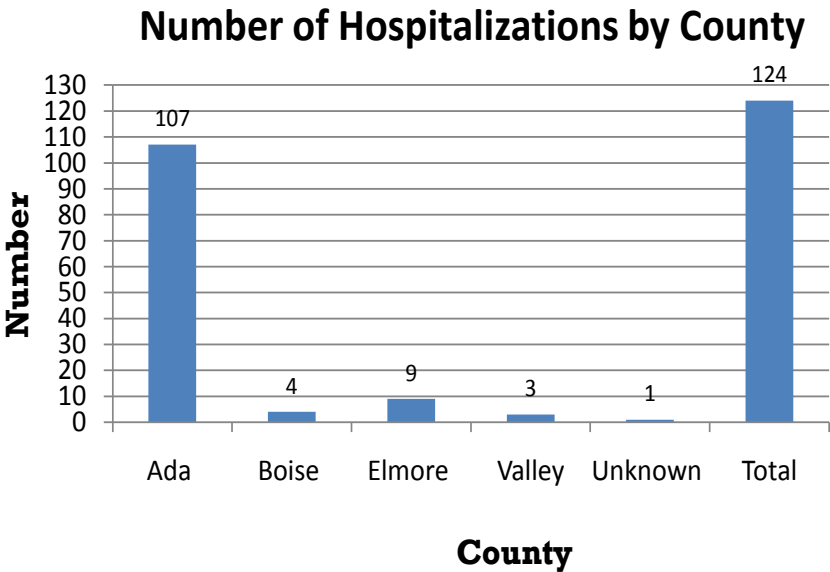
Note: Provisional data as of March 12, 2010

Figure 3



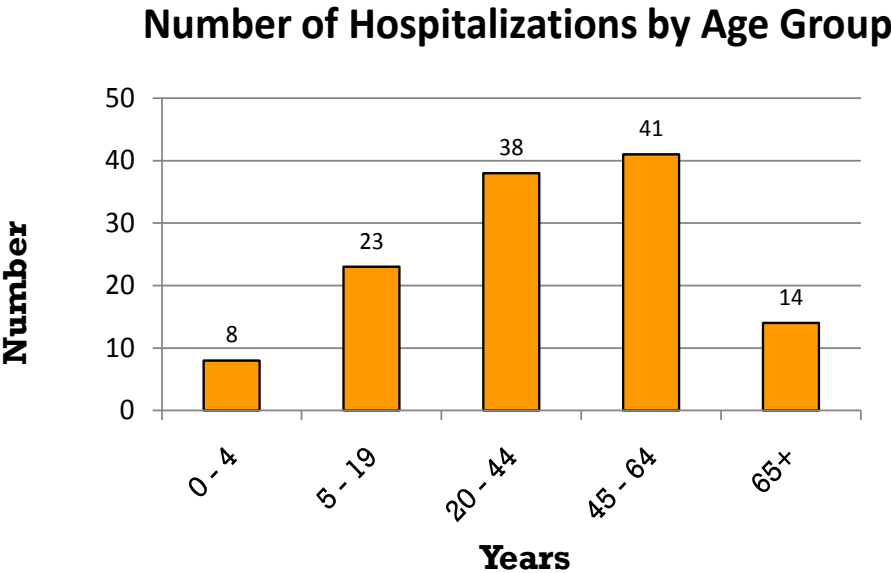
Note: Provisional data as of March 12, 2010

Figure 4



Note: Provisional data as of March 12, 2010

Figure 5



Note: Provisional data as of March 12, 2010

Security

Security was an essential component to ensuring safety and security of staff, volunteers, contract workers, resources, and the public. The Boise Police Department provided CDHD support and coordinated with neighboring counties to ensure all safety and security issues were adequately addressed. A security company was hired to support POD clinics and school strike teams. There were no protests or unruly crowds and only one security incident was reported.

Planning

Planning is critical before any public health emergency and is a key component during and following an event. During this response, we discovered early on that many of our plans for a pandemic response were developed based on theories and assumptions that did not hold true. Even so, we were better prepared because we had developed community partnerships, and conducted training exercises. The community would have clearly suffered if we had done nothing to prepare for this type of response. As it turned out, the foundation was well-established so we adjusted our plans accordingly and responded to the ever-changing information we received. The information included aggregate data on infectiousness and virulence of the disease, vaccine production and availability, and access to antivirals, ventilators, and other medical supplies. We also had to consider funding allocations, and federal and state requirements for public health response activities in the planning process. All this input was analyzed and considered as we progressed through the response. This process facilitated successful plan development that resulted in a timely and efficient response.

Logistics

Logistics was an important and heavily tasked part of this response. As shipments of vaccine and ancillary supplies arrived weekly, the logistics team was responsible for maintaining inventory and coordinating the delivery of vaccine and supplies to PODs and health care clinics across the district. The logistics team was also responsible for preparing go-kits for school strike teams. They coordinated with the planning and finance chiefs to acquire facilities for POD operations, and procured a number of supplies necessary to adequately meet the operational needs. In addition to these tasks, the logistics team also received and distributed strategic national stockpile (SNS) supplies (e.g., N-95 respirators and antivirals) to hospitals and clinics within the Health District.

Finance

CDHD received roughly 1.4 million dollars in federal funding to support the H1N1 influenza response (Table 1). This funding was utilized to secure POD clinic locations in the district, hire additional staff and contractors, purchase supplies, and account for staff time. Of the original allocation, \$438,681 remains unspent. Some of the remaining funding will be used to shore up plans, replace exhausted resources, and develop materials/resources for potential subsequent waves. No district dollars were used to respond to this public health emergency.

Table 1

H1N1 Influenza Response Funding			
	Awarded	Spent	Balance
H1N1 Planning	\$586,488	\$523,650	\$62,838
H1N1 Implementation	\$857,216	\$506,833	\$350,383
H1N1 Epidemiology	\$38,500	\$13,040	\$25,460
Total	\$1,482,204	\$1,043,523	\$438,681

Note: Funding balance through February 2010

Communication

Communication is perhaps the most important element of emergency response. The Public Information Officer, Incident Commander, Planners, and Director were primarily responsible for internal communication. Email and the Intranet were heavily utilized to communicate updates and work assignments to staff. External communication to the public was provided via a call center, Internet, and press releases that generated stories in the newspapers, on TV and radio. Communication to community partners was handled in several different ways. County emergency managers and local officials were provided email updates. Important treatment, testing, and diagnosing recommendations as well as vaccine updates were communicated via the Health Alert Network, partnership with the Idaho Medical Association, and by telephone to the health care community.

Liaison

Two liaisons were designated for this response to interface with two principal entities. One of the liaisons worked directly with the local medical community (e.g., clinics, pharmacies, EMS, and hospitals) to coordinate the distribution of vaccine and SNS supplies. The liaison established partnerships with over 145 clinics, hospitals, and other organizations to ensure a community-wide response. The second liaison worked with public and private schools to coordinate vaccine efforts targeting school aged children. Over 140 schools collaborated with CDHD to bring H1N1 influenza vaccine to students. In addition, the liaisons also provided regular updates to the county emergency managers.

Information Technology

Information technology (IT) played a key role on several fronts that greatly enhanced our ability to meet the challenge. With the phone system quickly becoming strained, the ability to expand to a call center was essential. It not only allowed CDHD employees to focus on the response, but also gave the public a live person to talk to with little or no wait.

This response put an unprecedented strain on our logistic capabilities and IT was critical in assisting us in accomplishing our mission. Databases developed with preparedness funds prior to this event were successfully used to monitor the additional flow of resources into and out of CDHD.

Reliable access to the Internet was also essential to the success of our response. CDHD relied heavily on the use of the Internet to communicate information to the public and health care providers,

including real-time updates of vaccine availability and wait times (e.g., long lines and wait times of over 30 minute) at POD clinics. Hand held devices were also heavily utilized by lead staff to communicate information through voice and text messaging during operations being conducted outside of health department facilities (e.g., schools and POD clinics).

Policy

Coordination with Idaho Department of Health and Welfare, Division of Public Health regarding the distribution plan of vaccine from the federal level to the local level was critical. Policy decisions were made about who within our district would receive vaccine directly from the federal government and who would receive it from CDHD. The decision was made to have CDHD primarily control the vaccine to ensure adherence to one standardized process. The process included following one set of reporting requirements (e.g., including demographics of the vaccinated population and adverse events).

As demand for vaccine exceeded supply in the early weeks of the pandemic, policy decisions were necessary to address equity of distribution and determination of which Centers for Disease Control and Prevention (CDC) recommendations would be followed.

The seven health districts coordinated efforts to communicate similar messages to the public. They also worked to present a united front on vaccination throughout Idaho. Vaccination strategies varied by the health district, with the primary goal being to accommodate the needs of local communities within each jurisdiction. This flexibility allowed each health district to best support their individual communities and maximize their respective resources.

Lessons Learned

CDHD acknowledges that there are always lessons to be learned and improvements to be made following the implementation of any plan. Therefore, many of the planning efforts were based on assumptions, theories, and historic accounts. Early in our response, we discovered that our plans provided a strong foundation, but that we needed flexibility and innovative thinking to adequately meet the immediate and evolving needs of the community. We were able to adapt to the unfolding situation, but in hind sight have found areas that we could still improve upon. Below we have identified each function area in our response and some of the key areas where improvement could benefit us in the future.

Planning

- Proactively use an Incident Action Plan throughout the duration of the incident
- Develop more stringent criteria for validating skills of volunteer medical professionals
- Develop a more robust volunteer management system

Operations

- Enhance disease surveillance capabilities
- Include private security options in the Emergency Operations Plan
- Pre-identify leaders and ensure training to appropriate level
- Develop a contingency plan for strike teams
- Adjust point-of-dispensing plans to include more accommodations for families

Logistics

- Pre-identify and adequately train a cadre of personnel within the organization
- Enhance training on inventory management systems
- Improve communications between Logistics and other functional areas
- Establish a Facilities Unit within Logistics

Finance

- Develop training related to the rules and regulations for purchasing

Safety Officer

- Identify a person other than the Facilities Manager to fill the role of Safety Officer
- Ensure safety training is occurring prior to every operations activity

Public Information Officer (PIO)

- Improve access of the Incident Commander to the PIO
- Avoid making operational changes between operational periods to reduce miscommunication to the public
- Pursue active information sharing with neighboring health districts

Liaison

- Establish a role for multiple liaisons to communication with County Emergency Managers, hospitals, etc.
- Expand communication and utilization of Tactics Planning between the Liaison, Planning, and Operations functional areas

Command and Control

- Utilize future Departmental Operations Center training opportunities to emphasize the use of the Incident Action Plan and associated communication tools
- Develop a contingency plan to stand up and maintain a fully functional Departmental Operations Center during field operations

The Public Health Preparedness Program is facilitating on-going activities to glean information from community partners. Our goal is to gain perspective from community partners on what lessons were learned within their organizations. Furthermore, we hope to obtain insight into what opportunities we have for improvement based on their observations. The ultimate goal is to recognize what changes may be necessary as we prepare for subsequent waves of the 2009 H1N1 influenza virus and future public health emergencies.